

## A new genus and species of Annulariidae (Gastropoda) from the Dominican Republic: *Tessaripoma* n. gen. and *Tessaripoma arenarium* n. sp.

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**KEYWORDS.** Gastropoda, Annulariidae, Dominican Republic.

**ABSTRACT.** A new genus and species of Annulariidae are described from the Dominican Republic: *Tessaripoma* n. gen. and *Tessaripoma arenarium* n. sp. The genus also contains *T. hooksi* (Watters & Duffy, 2010) and *T. alyshae* (Watters & Duffy, 2010). The genus is endemic to the eastern end of the Hoya de Enriquillo between the Tiburon/Barahona Peninsula and the remainder of Hispaniola.

### INTRODUCTION

In the original descriptions of *Chondropomium hooksi* and *Chondropomium alyshae*, Watters and Duffy (2010) noted that those species did not adequately correspond to *Chondropomium* and speculated that they belonged to an as yet undescribed genus; this suspicion was raised again by Watters (2012). The recognition of a related, undescribed third species from the same vicinity indicates that they form a new genus-level taxon apart from *Chondropomium* and related genera. All are part of the diverse annulariid fauna endemic to the Tiburon/Barahona peninsular area and adjacent Hoya de Enriquillo rift valley.

### Repositories

GTW: Collection of the author.

NHMUK: Natural History Museum, London, UK.

OSUM: Ohio State University Museum of Biological Diversity, Columbus, Ohio, USA.

UF: Florida Museum of Natural History, Gainesville, Florida, USA.

### SYSTEMATICS

Superfamily LITTORINOIDEA

Family ANNULARIIDAE Henderson & Bartsch, 1920

Genus *Tessaripoma* new genus

Type species *Chondropomium hooksi* Watters & Duffy, 2010 – Recent, Hispaniola.

**Description.** Shell thin but solid, elongated, usually decollate as adult. Protoconch of 1.5 smooth whorls and 3.75-5.25 rounded teleoconch whorls. Teleoconch with both spiral and axial sculpture well-developed as threads; intersections form low denticles producing a rough granular, serrate, or scalloped surface. Sutures with or without fused tufts. Aperture oval, lip double, narrowly separated from adjacent body whorl; inner

lip slightly exerted, outer lip consisting of concentric lamellae, narrowly expanded all around, forming a small triangular auricle at the posterior angle. Color pattern of brown or tan squarish or chevron spots neatly oriented both spirally and axially on a white or tan background. Operculum with a well-developed pseudolamella consisting of numerous raised lamellae that are at least partially fused at their distal edges to form a continuous plate parallel to the cartilaginous base (Fig. 1C). Taenioglossate radula composed of seven teeth per row in the pattern 2+1+R+1+2; a central or rhachidian tooth is flanked by one pair of laterals and two pairs of marginals (Fig. 1M). Central and lateral teeth triangular, unicuspid. Inner marginal distally dentate (ca. 5 cusps). Outer marginal distally divided into numerous, very long, comb-like teeth.

**Remarks.** *Tessaripoma* is related to *Clydonopoma* and *Chondropomium*, both endemic genera of the Barahona Peninsula and the rift valley separating the Tiburon Peninsula from the remainder of Hispaniola. (*Clydonopoma* was synonymized with *Chondropomium* by Watters (2006) but is differentiated by its pseudolamellate operculum; *Clydonopoma* is here considered distinct and currently contains *Clydonopoma nobile* (Pfeiffer, 1852), *Clydonopoma peasei* (Pilsbry, 1933), and *Clydonopoma pumilum* (Watters & Duffy, 2010)). Neither *Clydonopoma* nor *Chondropomium* have a serrate or beaded sculpture. Both lack the spiral sculpture found in *Tessaripoma* except for a few cords found within the umbilicus. Both have a polished or silky appearance in contrast to the rough granular texture of *Tessaripoma*. *Tessaripoma* shares a pseudolamellate operculum with *Clydonopoma*; *Chondropomium* has a calcified operculum but it is not pseudolamellate. *Tessaripoma* superficially resembles *Chondropoma* but is differentiated by the pseudolamellate operculum.

The three species of *Tessaripoma* are known from xeric hills in the extreme eastern end of the rift valley of Hoya de Enriquillo between Barahona and Bani along the Sierra Martín García of the Sierra Neiba and

the southern slope of the southwestern edge of the Paralta Belt, a series of Eocene–Oligocene sedimentary sequences of the southeastern Cordillera Central (Fig. 1O). This is a linear distance of <90 km. This marks the eastern extent of the incursion of the Tiburon Peninsula annulariids into the remainder of Hispaniola along this intervening rift valley. In these endemic groups, only *Chondropomium swiftii* (Shuttleworth, 1854) also occurs this far east.

**Etymology.** *L. tessara*, spotted tile or die + *L. -poma*, mouth, but used as the common suffix for annulariid taxa. Neuter.

Species included in *Tessaripoma*:

*Tessaripoma hooksi* (Watters & Duffy, 2010)

*Tessaripoma alyshae* (Watters & Duffy, 2010)

*Tessaripoma arenarium* n. sp.

*Tessaripoma hooksi* (Watters & Duffy, 2010)

Figs 1A, B, E, N-P

*Chondropomium hooksi* Watters & Duffy, 2010: 7, figs. 20-23; Watters, 2012: 9.

**Type material.** Holotype UF 420727. Paratype 1 OSUM 32486. Paratype 2 NHMUK 1996351.

**Type locality.** “Dominican Republic, Peravia Province, Punta Salina, 21 km W of Bani” (Watters & Duffy, 2010: 7). This site is just north of RD 2 (Carretera Francisco del Rosario Sánchez) on a series of low hills on the west bank of the Rio Ocoa at 18.3586° N, 70.5016° W.

**Distribution and habitat.** This species is only known from the foothills of the Cordillera Central near the Rio Ocoa (Fig. 1O). It has been found estivating under embedded coralline rocks and debris on the slopes of small hills (<200 m elevation). Several snails are often found under the same rock. The habitat is a highly xeric, rocky soil with sparse agave and cacti. Like many Tiburon/Barahona annulariids, these snails have adapted to extremely arid conditions by burrowing deeply under seemingly securely embedded rocks where there are cooler temperatures and a modicum of

moisture. They presumably emerge during rainfall or perhaps at night as well. A living animal is shown in Figure 1N. The habitat is shown in Figure 1P.

*Tessaripoma alyshae* (Watters & Duffy, 2010)

Figs 1C, D, F, M, O

*Chondropomium alyshae* Watters & Duffy, 2010: 7-8, figs. 24-26; Watters, 2012: 9.

**Type material.** Holotype UF 420733. Paratype 1 OSUM 32487. Paratype 2 NHMUK 1996352.

**Type locality.** “Dominican Republic, Barahona Province, 12 km S off main highway to Puerto Alejandro” (Watters & Duffy, 2010: 7). This locality is at 33 m elevation, 7.8 km ESE of La Canoa, along road from La Canoa to Puerto Alejandro at 18.3365° N, 71.0877° W.

**Distribution and habitat.** The species is only known from the type locality in the xeric, eastern limestone foothills of the Sierra Martín García of the Sierra Neiba (Fig. 1O).

*Tessaripoma arenarium* n. sp.

Figs 1G-L, O

**Type material.** Holotype UF 216525 (16.9 mm length including peristome, 9.3 mm maximum width including peristome, 7.4 mm outer lip maximum diameter). Paratype 1 UF 216525 (17.3 mm). Paratype 2 UF 216525 (13.9 mm). Paratype 3 UF 216525 (13.4 mm). Paratype 4 UF 216525 (13.7 mm). All measurements for maximum length, including peristome; all decollate.

**Type locality.** Dominican Republic, Peravia Province, 4 km WNW of Galeon, just S of RD 2 (Carretera Francisco del Rosario Sánchez), 200 m elevation, ca. 18.3328° N, 70.4502° W.

**Distribution and habitat.** This species occurs in the xeric, eastern limestone foothills of the Cordillera Central of the Rio Ocoa; *Tessaripoma hooksi* occurs in the western foothills of the same river (Fig. 1O).

## Figure 1

**A, B, E, N, P.** *Tessaripoma hooksi* (Watters & Duffy, 2010). **A, B.** Topotype GTW 7168c, 18.7 mm length; **E.** Detail of suture; **N.** Living animal; **P.** Habitat at type locality.

**C, D, F, M.** *Tessaripoma alyshae* (Watters & Duffy, 2010). **C, D.** Paratype OSUM 32487, 18.7 mm length; **F.** Detail of suture; **M.** Radula, bar = 200  $\mu$ .

**G-L.** *Tessaripoma arenarium* n. sp. **G.** Detail of suture, holotype; **H, I.** Holotype UF 420733, 16.9 mm length; **J.** Paratype 1 UF 216525, 17.3 mm length; **K.** Paratype 2 UF 216525, 13.9 mm length; **L.** Paratype 3 UF 216525, 13.4 mm length.

**O.** Distribution of *Tessaripoma* species. Blue – *T. arenarium*, yellow – *T. hooksi*, red – *T. alyshae*. Map Google™ Earth Pro. Image Landsat. © 2105 Google. Data: SIO, NOAA, US Navy, NGA, GEBCO.



**Other material examined. Dominican Republic.** UF 216525, 55 additional specimens from the type locality.

**Description.** Shell thin but solid, opaque, high-spired, elongate conic. Maximum adult size: 17.3 mm maximum length, including peristome, decollate. Minimum adult size: 13.4 mm maximum length, including peristome, non-decollate. Adult shell often decollated but usually leaving a half whorl or more of the protoconch intact. Protoconch of 1.5 minute, smooth, rounded whorls, white or pale tan, demarcation between protoconch and teleoconch not well-defined. Teleoconch of 4.75-5.25 whorls. Primary axial sculpture on final whorl of numerous (ca. 90) very fine, widely spaced, raised threads. Secondary axial sculpture of 2-5 microscopic, nearly lamellate threads between each primary thread. Spiral sculpture on final whorl outside of umbilicus of ca. 30 fine, widely spaced, raised threads. Primary axial and spiral sculpture of about the same thickness and separated by the same spacing, giving a very uniform lattice appearance to the shell. Intersections of primary axial and spiral sculpture forming minute raised beads. Secondary axial sculpture microscopically beaded or scalloped crossing the spiral threads. Overall sculpture finely but distinctly beaded or granulose. Threads barely increase in size at umbilical boundary; threads within umbilicus numerous, faint. Suture deep, narrow. Each primary axial thread is slightly enlarged and elongated to varying degrees at the suture rendering it irregularly serrate; no threads are fused into tufts. Aperture teardrop-shaped, lip double. Inner lip erect, well-developed. Outer lip evenly but narrowly expanded, except much narrower facing the umbilicus, slightly fimbriated, lamellar, produced into a small, wide auricle at the posterior border. Outer lip narrowly detached from previous whorl. Base color white or pale tan, patterned with darker brown squarish blotches in ca. 6 spiral bands, irregularly axially aligned as well; blotches more regularly spaced on earlier teleoconch whorls. Beads white, aperture and lips white, umbilicus lacking spiral bands. Outer color pattern visible through shell in aperture. Operculum lacking in all specimens examined.

**Variation in specimens.** Specimens are quite uniform in shell characteristics. Base color varies from white to tan and there is some variation in adult size (13.4-17.3 mm length).

**Comparison with other species.** From *T. hooksi* it differs in lacking the fused sutural tufts and in having a more slender shape. From *T. alyshae* it differs in having a beaded rather than scalloped sculpture and in having enlarged sutural denticles. It differs from both in having more teleoconch whorls (4.75-5.25 vs. 3.75-4 for *T. alyshae* or 4.75 for *T. hooksi*) and being somewhat smaller (ca. 17 mm vs. 19 mm length for both *T. hooksi* and *T. alyshae*).

**Remarks.** Several specimens, including the holotype and a paratype, have a bore hole through the shell at approximately the same location on the final whorl (Figs. 1H, J). Such holes have been ascribed to predaceous lampyrid and elaterid (Drilini) beetle larvae (Harry, 1950) and have been recorded from other Hispaniolan annulariids such as *Abbottella* (Watters, 2013).

**Etymology.** Latin *arenarius*, sandy, in reference to the sculpture.

#### ACKNOWLEDGEMENTS

The author thanks Gustav Paulay, John Slapcinsky, Amanda Bemis, and Fred Thompson (UF) for access to their invaluable collection. Allan Gettleman (Florida, USA) and Matt Blaine (Delaware, USA) supplied habitat notes for *T. alyshae*.

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